

ESTIMATING SUSTAINABLE HARVESTS FOR WILD PIG POPULATIONS IN AUSTRALIA'S RANGELANDS

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International demand for Wild pig meat has led to rapidly increasing harvests in Australia, particularly in the semi-arid rangelands which contain the highest density of pig populations. Overharvesting has occurred in some areas, leading to uncertainty in the supply of Wild pig carcasses for export. Uncertainty of supply prompts Wild pig meat exporters to relocate harvesting operations to other areas, eliminating an important source of income to local game hunters and to the local economy. Regulated harvesting would stabilise hunter incomes and guarantee consistent access to harvestable pigs, allowing demand and supply to be more closely matched. In order to regulate Wild pig harvests, sustainable yields must be estimated and used to set local or regional quotas.

Seasonal conditions in Australia's semi-arid rangelands are highly unpredictable. Rainfall has little seasonality and variation between years is typically high (>40%), leading to extreme

variation in available pasture. Because wild pigs inhabiting the rangelands subsist on pasture, rates of change in their abundance are closely linked to its availability. Consequently, sustainable yields for pig populations in the rangelands cannot be accurately predicted using simple techniques (*i.e.* logistic-based harvesting models). We used an empirically derived stochastic population model to evaluate alternative harvesting schemes for wild pigs in rangelands habitats. The simulation model is based on an interactive plant-herbivore system comprising pasture, an unharvested population of kangaroos, and wild pigs. The model is used to examine how the maximum sustainable yield (MSY) of Wild pig populations in rangelands habitats varies with prevailing seasonal conditions, and how MSY can be tracked and predicted using environmental indicators. A series of simulations illustrating how a regulated harvest of wild pigs would operate has been also conducted.